

Omega-6 – experts lowering the requirement from 1% to 0.3% ...

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- *From:* Taka <taka0038@xxxxxxxx>
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Fish oil prevents essential fatty acid deficiency and enhances growth: clinical and biochemical implications.

Strijbosch RA, Lee S, Arsenault DA, Andersson C, Gura KM, Bistran BR, Puder M.

Department of Surgery and the Vascular Biology Program, Children's Hospital Boston, Harvard Medical School, Boston, MA 02115, USA.

Fish oil, a rich source of omega-3 fatty acids, has never been used as the sole source of lipid in clinical practice for fear of development of essential fatty acid deficiency, as it lacks the believed requisite levels of linoleic acid, an omega-6 fatty acid. The objectives of this study were to establish biochemical standards for fish oil as the sole fat and to test the hypothesis that fish oil contains adequate amounts of omega-6 fatty acids to prevent essential fatty acid deficiency. Forty mice were divided into 2 groups that were either pair fed or allowed to eat ad libitum. In each group, 4 subgroups of 5 mice were fed 1%, 5%, and 10% fish oil diets by weight or a control soybean diet for 9 weeks. Blood was collected at 4 time points, and fatty acid analysis was performed. Food intake and weight status were monitored. All groups but the pair-fed 1% fish oil group gained weight, and the 5% fish oil group showed the highest caloric efficiency in both pair-fed and ad libitum groups. Fatty acid profiles for the 1% fish oil group displayed clear essential fatty acid deficiency, 5% fish oil appeared marginal, and 10% and soybean oil diets were found to prevent essential fatty acid deficiency. Fish oil enhances growth through higher caloric efficiency. We established a total omega-6 fatty acid requirement of between 0.30% and 0.56% of dietary energy, approximately half of the conventionally believed 1% as linoleic acid. This can presumably be attributed to the fact that fish oil contains not only a small amount of linoleic acid, but also arachidonic acid, which has greater efficiency to meet omega-6 fatty acid requirements.

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